

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1 1. (currently amended) Monoatomic and
2 monocrystalline layer of diamond type carbon, this said
3 layer being characterized in that it is formed on the
4 surface of a monocrystalline substrate of SiC and extends
5 closely over the totality of this said substrate area,
6 said monocrystalline substrate of SiC being one of a thin
7 layer of monocrystalline SiC in cubic phase β -SiC (100)
8 formed on a platelet of Si or a platelet of
9 monocrystalline SiC in hexagonal phase, said layer of
10 diamond-type carbon being formed by transformation of the
11 carbon hybridization on the last atomic layer of said SiC
12 substrate, said layer of diamond-type carbon thereby
13 extending over substantially the entire area of said
14 substrate and being formed without alternate heating and
15 cooling of said substrate by intermittently passing an
16 electric current therethrough for less than a second.

2. (previously cancelled).

3. (previously cancelled).

1 4. (previously amended) Monoatomic and
2 monocrystalline layer according to claim 1, covered with
3 a monocrystalline layer of diamond formed by growth from
4 the monoatomic and monocrystalline layer, the latter
5 acting as matrix.

1 5. (currently amended) ~~Manufacturing process of~~
2 Process for manufacturing a monoatomic and
3 monocrystalline layer of diamond type carbon, ~~this~~
4 ~~process being characterized in that one forms~~ comprising
5 the steps of forming a monocrystalline substrate in SiC
6 terminated by a carbon atomic plane according to a c(2x2)
7 reconstruction, ~~this~~ said plane being a plane of carbon-
8 carbon dimers of sp configuration, and ~~in that one~~
9 ~~carries out at least one annealing of this~~ said
10 substrate, ~~this annealing being able~~ to transform the
11 plane of carbon-carbon dimers of sp configuration into a
12 plane of carbon-carbon dimers of sp³ configuration ~~thus~~
13 ~~forming a~~ to form said monoatomic and monocrystalline
14 layer of diamond type carbon, without alternate heating
15 and cooling of said substrate by intermittently passing
16 an electric current therethrough for less than a second.

1 6. (currently amended) Process according to claim
2 5, ~~in which the~~ wherein said SiC monocrystalline
3 substrate is prepared from a thin layer of

4 monocrystalline SiC in cubic phase β -SiC with a face
5 (100) terminated by a layer of Si.

1 7. (currently amended) Process according to claim
2 5, ~~in which the~~ wherein said SiC monocrystalline
3 substrate is prepared from a monocrystalline SiC platelet
4 in hexagonal phase with a face (1000) terminated by a
5 layer of Si.

1 8. (currently amended) Process according to claim
2 6, ~~in which, to obtain the~~ further including annealing
3 said substrate to eliminate said layer of Si to form said
4 atomic plane of carbon according to the reconstruction
5 $c(2 \times 2)$, ~~an annealing is carried out capable of~~
6 ~~eliminating the layer of Si.~~

1 9. (currently amended) Process according to claim
2 6, ~~in which, to obtain the~~ further including depositing
3 hydrocarboned molecules on said Si layer and cracking
4 said molecules to form said atomic plane of carbon
5 according to the reconstruction $c(2 \times 2)$, ~~a deposit of~~
6 ~~hydrocarboned molecules is made on the Si layer followed~~
7 ~~by cracking of these molecules.~~

1 10. (currently amended) Process according to claim
2 9, ~~in which the~~ wherein said hydrocarboned molecules are
3 ~~chosen from among the group comprising the~~ selected from

4 the group consisting of molecules of C_2H_4 and ~~the~~
5 molecules of C_2H_2 .

1 11. (currently amended) Process according to claim
2 5, ~~in which, to transform the~~ wherein said step of
3 transforming said plane of carbon-carbon dimers of sp
4 configuration into a plane of carbon-carbon dimers of sp^3
5 configuration, ~~one carries out~~ further includes an
6 annealing or a plurality of successive annealings, at a
7 temperature approximately equal to $1250^{\circ}C$, of the
8 monocrystalline substrate in SiC terminated by the atomic
9 plane of carbon according to the reconstruction $c(2 \times 2)$,
10 the total time of annealing being greater than or about
11 equal to 25 minutes.

1 12. (currently amended) Process according to claim
2 7, ~~in which,~~ further including annealing said substrate
3 to eliminate said layer of Si to obtain the atomic plane
4 of carbon according to the reconstruction $c(2 \times 2)$, ~~an~~
5 ~~annealing is carried out capable of eliminating the layer~~
6 ~~of Si.~~

1 13. (currently presented) Process according to
2 claim 7, ~~in which,~~ further including depositing
3 hydrocarboned molecules on said layer of Si and cracking
4 said molecules to obtain the atomic plane of carbon
5 according to the reconstruction $c(2 \times 2)$, ~~a deposit of~~

6 ~~hydrocarboned molecules is made on the layer of Si~~
~~followed by a cracking of these molecules.~~

1 14. (currently amended) Process according to claim
2 13, ~~in which the~~ said hydrocarboned molecules are ~~chosen~~
3 ~~from the group comprising the~~ selected from the group
4 consisting of molecules of C_2H_4 and ~~the~~ molecules of C_2H_2 .